



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS  
WASHINGTON, DC 20555 - 0001**

October 17, 2019

The Honorable Kristine L. Svinicki  
Chairman  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555-0001

**SUBJECT: ACRS ACTIVITIES TO SUPPORT NRC TRANSFORMATION**

Dear Chairman Svinicki,

In response to our recent interactions with the Commission, we engaged in a number of activities to better understand the NRC transformation initiative and assess how the Committee might become more effective and efficient. We were briefed by senior NRC staff on planned and ongoing transformation efforts and conducted a number of ACRS retreats to discuss the topic. We also obtained input from the Executive Director for Operations (EDO), all current Commissioners and several former Commissioners regarding those ACRS activities or products they found to be most effective and impactful in fulfilling our statutory mission. In addition, we had the benefit of the documents referenced.

**CONCLUSIONS AND PROPOSED ACRS ACTIONS**

1. We will stay abreast of staff transformation initiatives through periodic update meetings and will evaluate how we can continue to contribute to agency transformation activities.
2. We will further improve our effectiveness and efficiency through prioritization of our reviews and independent advice on issues related to public health and safety, emphasizing risk-significant issues and agency transformation priorities.
3. We have identified and begun to implement a number of actions that improve our operational efficiency. Our operating costs have seen significant reductions and continue to trend downwards.
4. Our reviews provide an integrating perspective and increase expectations regarding the quality and rigor of the work performed by both staff and industry. We will continue to provide the depth and breadth necessary to maintain these expectations.
5. We do not see, at this time, a need for modifications or updates to matters referred to the Committee as established in NRC's regulations to implement these actions.

**ACRS HISTORICAL PERSPECTIVE**

Nuclear energy is unique because of potential hazards related to releases of radioactive material from facilities under normal operations and accidents. Recognizing this, the Atomic

Energy Commission established special advisory committees to advise on the siting of nuclear power plants and review and evaluate the hazards associated with this technology. In 1957, Congress made the Advisory Committee on Reactor Safeguards (ACRS) a statutory committee, composed of experts representing many technical perspectives to provide independent advice.

Currently, the ACRS provides independent advice to the Commission on the safety of proposed or existing NRC licensed facilities and the adequacy of proposed safety standards. The ACRS reviews power reactor and fuel cycle facility license applications for which the NRC is responsible and safety- and risk-significant NRC regulations and guidance relating to these facilities. The ACRS also reports to and advises the Commission on issues associated with nuclear materials and waste management. On its own initiative, ACRS may conduct reviews of specific generic matters or nuclear facility safety-related items.

The Commission may also refer other matters to ACRS for review. The ACRS also provides advice on naval reactor designs. Upon request, ACRS may provide advice on hazards associated with the Department of Energy nuclear activities and facilities, and to the Defense Nuclear Facilities Safety Board.

ACRS operations are governed by the Federal Advisory Committee Act (FACA), which is implemented through NRC regulations (10 CFR Part 7). ACRS operational practices encourage the public, industry, state and local governments, and other stakeholders to express their views on regulatory matters.

## **NRC TRANSFORMATION INITIATIVES**

In January 2018, the EDO tasked a Transformation Team to identify changes to the regulatory framework, culture and infrastructure to further enhance the Agency's effectiveness, efficiency and agility. Techniques, ideas, and information relating to novel technologies from internal and external stakeholders were analyzed to identify specific areas to initiate transformation at the NRC. Initiatives the staff is addressing include:

- Development of an agency-wide process to expand the systematic use of qualitative and quantitative risk and safety insights;
- Allowance of additional flexibility under 10 CFR 50.59, "Changes, Tests, and Experiments," for licensees to make facility changes without prior NRC approval;
- Development of a risk-informed, performance-based approach for licensing of non-light water reactors; and
- Development of regulatory guidance based on application of instrumentation and control (I&C) fundamental design principles.

Staff is currently developing strategies to pursue these and other initiatives with a focus on improving the agency's ability to adapt and transform its culture to that of a modern, risk-informed regulator.

## **ACRS ROLE IN A TRANSFORMED AGENCY**

As the agency develops a vision and strategy to assure that the NRC is ready to review potential applications for advanced, non-light water reactor (non-LWR) technologies, the role of the ACRS, with its diverse technical expertise, to perform integrated/multi-disciplinary reviews continues to be essential.

### **Commissioner Input**

Commissioner input has identified the following areas where ACRS engagement is most effective:

- ***Risk-Informed Decision Making*** – Several commissioners opined that the most important role the ACRS can play is to continue its firm support of and advice regarding risk-informed decision making.
- ***Digital I&C*** – This was identified as an important topic, and one commissioner stated that NRC and the nuclear industry are far behind where they should be on this topic.
- ***Research Reviews*** – Research reviews were identified by several commissioners as an important area for continued ACRS involvement.
- ***New Technologies and Reactor Types*** – ACRS is a highly competent group of dedicated experts from outside the agency, encompassing a broad range of disciplines, who dig deeply into the matters subject to the Committee's review. The ACRS members' independent technical assessments assist the NRC staff in making high-quality regulatory evaluations.

### **Prioritization of ACRS Review Activities**

The following criteria will be used to set priorities for our in-depth reviews:

- Does the issue affect public health and safety?
- Does the issue relate to one of the four agency transformation initiatives (i.e., risk-informed decision making; 10 CFR 50.59 flexibility; licensing of non-LWRs; or digital I&C safety design principles)?
- Does the issue involve new methods or technologies, or is it a routine matter that we have reviewed numerous times before, and for which the staff processes are mature and technically advanced?
- Is the activity directed by the Commission?
- Other criteria that future staff transformation activities may identify.

To implement this prioritization, ACRS Subcommittee Chairs will engage with staff to assess the importance of topics posed for review based on the above criteria and make a recommendation to the Full Committee as to whether a topic warrants our in-depth review.

We have already identified several areas in which our in-depth reviews may no longer be needed, such as requests for power uprates less than 7 percent, requests for plants to operate in the expanded power to flow domain, and routine license renewal applications.

We are currently exploring with the staff a more effective approach to our ongoing review of the NuScale design certification application (DCA). ACRS has historically conducted Phases 3 and 5 of Part 52 reviews on a chapter-by-chapter basis to identify and resolve technical issues. Under the proposed approach we would conduct our Phase 5 NuScale DCA review focused on key, risk-significant issues that are cross-cutting over multiple DCA chapters. This approach will emphasize technical integration and consistency in the design and will facilitate a more efficient and effective review.

To stay abreast of the agency's transformation initiatives, we will arrange for periodic updates. We will also continue to perform introspective evaluations to identify ways to improve our own effectiveness and efficiency and to contribute to agency transformation activities.

As we endeavor to further enhance our effectiveness and efficiency, we will also heed the words of one former commissioner: "The greatest value of the ACRS is its mere existence. Both the staff and the industry work harder to produce quality work when they know that they have to present their proposals to the Committee." In our reviews and independent advice, we will continue to provide the depth and breadth necessary to maintain these expectations.

Our broad collective expertise provides unique perspectives that can act as a proactive catalyst for the staff. Past examples include:

- Formative discussions that led to important approaches in risk-informed decision making (Regulatory Guide 1.174).
- An integrated approach to our review of NRC research programs to help prioritize future activities.
- Strong advocacy of a principle-based regulatory approach to digital I&C architectures based on independence, diversity, redundancy, deterministic processing, and access control. The staff has used this in digital I&C reviews.

We anticipate that similar interactions will lead to practical, risk-informed approaches in the Licensing Modernization Program and additional flexibility under 10 CFR 50.59.

### **ACRS Staffing and Budget**

The agency is moving forward with efforts to optimally position itself to accomplish its mission in a changing regulatory framework and culture, and industry environment. Over the past several years, we have collaborated with NRC program offices to achieve greater efficiencies while maintaining our independence. Our operating costs have seen significant reductions and continue to trend downwards. We will continue to seek approaches to provide technical advice and support to the Commission in the most beneficial and efficient manner.

### **SUMMARY AND CONCLUSIONS**

The focus of our actions to support the agency's transformation efforts, as described in this letter report, will be to prioritize our review and advisory activities to maximize those which will have the most impact and value to the Commission, while at the same time, maintaining our independence and technical competence that has been an asset to both the agency and the industry.

Sincerely,

/RA/

Peter C. Riccardella  
Chairman

## REFERENCES

1. Atomic Energy Act of 1954, as Amended Through Public Law 85-256, Enacted September 2, 1957.
2. Energy Reorganization Act of 1974, Public Law 93-438, 88 Stat. 1233, Enacted October 11, 1974.
3. U.S. Nuclear Regulatory Commission, “Advisory Committee on Reactor Safeguards Review of U.S. Nuclear Regulatory Commission Technical Matters,” Memorandum of Understanding Mutually Entered into between Executive Director for the Advisory Committee on Reactor Safeguards and Executive Director for Operations, March 12, 2018 (ML18250A281).
4. U.S. Nuclear Regulatory Commission, REGULATORY GUIDE 1.174, REVISION 3, “An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis,” January 2018 (ML17317A256).
5. U.S. Nuclear Regulatory Commission, “The Dynamic Futures for NRC Mission Areas,” 2019 (ML19022A178).
6. Nuclear Energy Innovation and Modernization Act, Public Law 115-439, Enacted January 14, 2019.
7. Title 10 of the Code of Federal Regulations (10 CFR) 50.59, “Changes, Tests, and Experiments.”

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